LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in this application.

Listing of Claims:

1. (Currently Amended) A method of assigning a network identifier to a client node, the client node having a memory and being operably connected to a server wherein the server assigns the network identifier to the client node, the method comprising the steps of:

providing a default identifier, the default identifier being assigned to the client node;

broadcasting a request ~~by the client node~~ for assignment of a network identifier from the server, the request being broadcast by the client node;

determining a location of the client node, the location being identified with respect to the server; the determining a location of the client node including:

receiving a request for the network identifier from the client node,

transmitting a toggle signal from the server, the toggle signal having an amount of state transitions,

storing the amount of state transitions in the memory of the client node,

identifying the client node having the default identifier and the amount of state transitions; and,

assigning the network identifier to the client node by the server to the client node in response to the determined location of the client node.

2. (Canceled)

3. (Currently Amended) The method of Claim [[2]] 1 wherein identifying the client node having the default identifier and the amount of state transitions comprises the steps of:

transmitting a request by the server to receive the amount of state transitions stored in the memory of the client node; and,

comparing the amount of state transitions stored in the memory of the client node with the toggle signal wherein the network identifier is transmitted to the client node in response to the comparison.

4. (Currently Amended) A method of assigning a network identifier to each of a plurality of client nodes operably connected to a network, each client node being operably connected to a network server wherein the network server assigns a network identifier to each client node, the method comprising the steps of:

providing a default network identifier, each of the plurality of client nodes being assigned the default network identifier;

requesting a network identifier from the network server, the request being made by the client node having the default identifier;

transmitting a toggle signal having a number of state transmissions by the network server;

storing the number of state transitions by the client node having the default identifier;

determining by the network server the client node having the default identifier and being nearest to the network server based on the stored state transitions in the client node; and,

assigning the network identifier by the network server to the identified client node, wherein additional, unique , network identifiers are subsequently assigned by the network server to each remaining client node having a default identifier and being nearest to the server.

5. (Original) The method of claim 4 further comprising:

inserting an additional client node into the network; and,

identifying the additional client node for assigning the permanent network identifier.

6. (Original) The method of claim 5 further comprising:

optimizing the assigning of a network identifier, the optimizing comprising the steps of:

monitoring a level of network interaction of each client node;

selecting a client node having a lowest level of network interaction; and,

assigning the network identifier in response to the selected client node.

7. (Currently Amended) A medium readable by a programmable device, the programmable device being operably connected to a network wherein the medium assigns a network identifier to a client node, the client node having a memory and being operably connected to the programmable device, the medium comprising:

a first segment for determining a location of the client node by the programmable device in response to a request for a network identifier from the client node, the location being identified with respect to the programmable device; and,

a second segment for assigning the network identifier by the programmable device to the client node in response to the determined location of the client node

a third segment for receiving a request for the network identifier;

a fourth segment for transmitting a toggle signal, the toggle signal having an amount of state transitions;

a fifth segment for storing the amount of state transitions; and,

a sixth segment for identifying the client node having the default identifier and the amount of state transitions.

8. (Canceled)

9. (Currently Amended) The medium of Claim [[8]] 7 wherein the sixth segment further comprises:

a request segment for transmitting a request to receive the amount of state transitions stored in the memory of the client node; and,

a comparison segment for comparing the amount of state transitions stored in the memory of the client node with the toggle signal wherein the network identifier is transmitted to the client node in response to the comparison.

10 - 12 (Canceled).

13. (Currently Amended) A network comprising a server node and a plurality of operably connected client nodes wherein a permanent identifier is assigned to each client node of the plurality of client nodes in response to a location of each client node with respect to the server node, the network comprising:

the server node having an address input and an address output;

each of the plurality of operably connected client nodes having an address input and an address output, the address input and the address output being operably connected to a microprocessor in the network client node;

a communication bus being operably connected to the server node and each of the one or more client nodes;

an address bus being operably connected the server node and each of the plurality of client nodes, the address bus being connected between the output address of the server node and the input address of the nearest client node, the output address of the nearest client node being connected to the input address of the next nearest client node, wherein each subsequent operably attached client node is similarly connected to the network; and,

a network identifier being assigned to each client node of the plurality of client nodes by the server node, the network identifier of each client node being assigned a unique value in response to the location of each respective client node to the server node, the location of each client node being determined in part by a toggle signal having a number of state transitions transmitted by the server node.

14. (Original) The communication network of Claim 13 wherein at least one of the client nodes is a placeholder node for reserving a network identifier for the position occupied by the placeholder node.

15. (Previously Presented) The communication network of Claim 13 wherein the communication bus is CANOpen.

16. (Previously Presented) The communication network of Claim 13 wherein the client node is an output module.

17. (Currently Amended) A method for assigning a network identifier to a plurality of client nodes in a network communication system comprising the steps of:

providing a network adapter <u>having an address output</u> serially connected to a plurality of client nodes<u>, each client node having an address input and an address output, wherein the address output of the network adapter is connected to the address input of a nearest adjacent client node of the plurality of client nodes and the address output of the nearest adjacent client node is connected to the address input of the next nearest adjacent client node of the plurality of client nodes</u> ;

initializing each of the plurality of client nodes with a default identifier; ~~and;~~

<u>transmitting a toggle signal having a predetermined number of active-inactive transitions by the network adapter;</u>

<u>storing the number of active-inactive transitions by a client node of the plurality of client nodes having a default identifier in a memory of the client node;</u>

<u>transmitting a signal to obtain the number of active-inactive transitions from the client node;</u>

assigning each of the plurality of client nodes a unique network identifier by the network adapter.

18. (Previously Presented) The method of claim 17 wherein the step of assigning each of the plurality of client nodes a unique network identifier by the network adapter occurs during power-up of the communication network system.

19. (Previously Presented) The method of claim 17 wherein the step of assigning each of the plurality of client nodes a unique network identifier by the network adapter occurs during a hot-swap of one of the plurality of client nodes of the communication network system.

20. (Previously Presented) The method of claim 17 wherein the step of assigning each of the plurality of client nodes a unique network identifier by the network adapter is initiated by the network adapter.

21. (Previously Presented) The method of claim 17 further comprises the steps of:

broadcasting a request for a network identifier by one of the plurality of client nodes.

22. (Currently Amended) The method of claim 17 further comprising the steps of:

receiving the toggle signal by the nearest one of the client nodes to the network adapter having a default address on its address input;

determining a location of the nearest one of the client nodes of the plurality of client nodes; and,

assigning the unique network identifier to the nearest one of the client nodes by the network adapter based on the location of the client node.

23. (Previously Presented) The method of claim 17 wherein the network adapter is a server node.

24. (Previously Presented) The method of claim 17 wherein the network adapter is a field bus connector.